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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/623,198	07/18/2003	Bruce Baretz	ATMI-198-CON	2836
25559	7590	02/04/2005	EXAMINER LE, THAO X	
ATMI, INC. 7 COMMERCE DRIVE DANBURY, CT 06810			ART UNIT 2814	PAPER NUMBER

DATE MAILED: 02/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/623,198	BARETZ ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Thao X. Le	2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 06 January 2005.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-20 and 25-30 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-20 and 25-30 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | Paper No(s)/Mail Date. _____ .  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>01/11/05</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|   | 6) <input type="checkbox"/> Other: _____ .                                  |

## DETAILED ACTION

### ***Election/Restrictions***

1. In the response dated 06 Jan. 2005, the Applicant clarified on page 8 Table 1 that 'the radiation in the blue to ultraviolet spectrum which in the context of the claim is relatively shorter wavelength radiation'. Thus, the restriction of claims 25-30 are withdrawn and claims 1-20 and 25-30 are being considered in the following Office Action.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-9, 18-20 and 25-29 are rejected under 35 U.S.C. 102(e) as being anticipated by US 5535230 to Abe.

Regarding claim 1, 18 and 25, Abe discloses a light emitting assembly comprising a solid state device 1, fig. 1(a) coupleable with a power supply constructed, fig. 3(a) and arranged to power the solid state device 1 to emit from the solid state device 1 a first, relatively shorter wavelength radiation, column 4 line 47, and a down-

converting luminophoric medium 4, column 4 line 30, arranged in receiving relationship to said first, relatively shorter wavelength radiation, and which in exposure to said first, relatively shorter wavelength radiation, is excited to responsively emit radiation in the visible white light spectrum L, column 4 line 30.

Although the prior art does not specially disclose the 'white light' limitation, this feature is seen to be inherently teaching of that limitation because visible light would include white light.

Regarding claim 2, Abe discloses the light emitting assembly according to claim 1, wherein the solid state device 1 and down-converting luminophoric medium 4 are associated in a unitary structure, fig.4(f)

Regarding claim 3, Abe discloses 3 the light emitting assembly according to claim 1, further comprising a housing member 5/10 formed of a light-transmissive material, column 4 line 26, said housing member defining therewithin an interior volumes with said solid state device 1 and down-converting luminophoric medium 4 being disposed in said interior volume, fig. 1(a).

Regarding claims 4-6, Abe discloses the light emitting assembly according to claim3, further comprising first and second electrical contacts, fig. 3(a) extending through said housing member 10 and coupleable to a power supply which is constructed and arranged for imposing a voltage on said solid state device 1 to induce emission of said first, relatively shorter wavelength radiation outside the visible white light spectrum, wherein said down-converting luminophoric medium 4 is continuously arranged in said interior volume of said housing in relation to said solid state device, fig.

1(a), wherein said down-converting luminophoric medium is arranged in spaced relation to said solid state device 1 in said interior volume of said housing, fig. 1(a).

Regarding claims 7-9, 19, Abe discloses the light emitting assembly according to claim 1, wherein said solid state device 1 comprises a device which is selected from the group consisting of semiconductor light emitting diodes, semiconductor laser, column 4 line 25.

Regarding claim 20, Abe discloses the light emitting assembly wherein said first, relatively shorter wavelength radiation is down converted to between one and three distinct and separable regions of red and/or green, and/or blue light, see abstract.

Regarding claims 26-29, Abe discloses the light emission device wherein the luminophoric medium 4 comprises phosphor material, and responsively emitting radiation in the green to yellow spectrum, wherein the LED comprises blue light, see Table 2, wherein the white light output comprises primary radiation emission from the LED 1 and secondary radiation emission from the luminophoric medium 4, fig. 1(a).

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 10-13 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5535230 to Abe in view of US 5777350 to Nakamura et al.

Regarding claims 10-11, Abe discloses the light emitting assembly according to claim 1, wherein said solid state device comprises a semiconductor light emitting diode including a substrate and a multilayer device structure, fig. 8(b) and wherein said substrate comprises GaAs, fig. 8(b).

But, Abe does not disclose the substrate comprises SiC.

However, Nakamura discloses a LED device in fig. 1 having a substrate 11 comprises SiC, sapphire, GaAs, Si, ZnO, column 6 line 49-55. At the time of the invention was made; it would have been obvious to one of ordinary skill in the art to replace the GaAs substrate of Abe with SiC substrate teaching of Nakamura, because such substrate replacement would have been considered a mere substitution of art-recognized equivalent values, MPEP 2144.06.

Regarding claim 12-13 and 30, Abe does not disclose the light emitting assembly according to claim 11, wherein said solid state device comprises a solid state laser

including an active material selected from the group consisting of III-V alloys and II-VI alloys, fig. 8(a).

But, Abe does not disclose the light emitting assembly according to claim 11, wherein said multilayer device structure includes layers selected from the group consisting of silicon carbide, aluminum nitride, gallium nitride, gallium phosphide, germanium carbide, indium nitride, and their mixtures and alloys.

However, Nakamura discloses a LED device in fig. 1 having a multilayer device structure includes layers 12-16 selected from the group consisting of silicon carbide, aluminum nitride, gallium nitride, gallium phosphide, germanium carbide, indium nitride, and their mixtures and alloys, column 6 lines 64-67 and column 7 lines 1-65. At the time the invention was made; it would have been obvious to one of ordinary skill in the art to use the nitride semiconductor LED teaching of Nakamura with Abe 's device, because it would have generated excellent laser oscillation, improved emission output as taught by Nakamura, column 2 lines 30-35.

7. Claim 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5535230 to Abe in view of US 5677417 to Muellen et al and Applicant Admitted Prior Art (APA).

Regarding claim 14-17, Abe discloses the light emitting assembly according to claim 1, wherein said solid state device includes an ultraviolet light source 1, column 4 line 47.

But Abe does not disclose the light emitting assembly wherein said down-converting luminophoric medium comprises a material selected from the group consisting of perylene tetracarboxylic diimide fluorescent dye.

However, Muellen discloses a fluorescent dye medium consisting of comprises a material selected from the group consisting of perylene tetracarboxylic diimide fluorescent dye, column 2 lines 8-20. At the time the invention was made; it would have been obvious to one of ordinary skill in the art to use the fluorescent dye teaching of Muellen to replace the luminophoric medium layer 4 of Abe because it would have improved light fastness, high thermal stability, high fluorescent and broad absorption range and can be easily form on glass or plastic substrate as taught by Muellen, column 4 line 51-58.

Furthermore, the Applicants admit in page 18 that the fluorescent materials claimed in claims 16-17 are commercially available. At the time the invention was made; it would have been obvious to one of ordinary skill in the art to use the teaching of Abe with the fluorescent materials commercially available as claim for intended used, MPEP 2144.07 and in the range as claimed, because it has been held that where the general conditions of the claims are disclosed in the prior art, it is not inventive to discover the optimum or workable range by routine experimentation. See In re Aller, 220 F.2d 454, 105 USPQ 233, 235 (CCPA 1955).

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thao X. Le whose telephone number is (571) 272-1708. The examiner can normally be reached on M-F from 8:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael M. Fahmy can be reached on (571) 272 -1705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thao X. Le  
27 Jan. 2005

LONG HAI  
PRIMARY EXAMINER